CLAIMS

1. An image display device comprising:

a spheroidal reflecting mirror having an open end;

a light source provided at a first focal point of the spheroidal mirror;

a polarization changing element provided at the open end of the spheroidal mirror;

a reflection type polarization selecting element provided near a second focal point of the spheroidal mirror;

a first fly-eye integrator upon which light having passed by the reflection type polarization selecting element is incident;

a second fly-eye integrator upon which the light having passed by the first fly-eye integrator is incident;

a reflection type spatial light modulating element illuminated with the light having passed by the fly-eye integrator to modulate the illumination light correspondingly to an image to be displayed;

a light selecting means for splitting the light reflected by the reflection type spatial light modulating element into light to be returned to the second fly-eye integrator and light to be directed to a projection optical system correspondingly to the modulation by the reflection type spatial light modulating element;

a reflector to reflect the light returned by the light selecting means to the second

fly-eye integrator, to thereby direct the light back to the reflection type spatial light modulating element; and

a projection optical system that projects the light incident via the projection optical means as image projection light,

the reflection type polarization selecting element and reflector being disposed inside a minimum circle of confusion defined by light emitted from the light source and condensed by the spheroidal reflecting mirror to near the second focal point.

2. The device according to claim 1, wherein the reflection type polarization selecting means and reflector are formed integrally with each other.

3. The device according to claim 1, wherein the reflection type polarization selecting element is a reflecting type circular polarizing plate and the polarization changing element is a quarter wave plate.

4. The device according to claim 1, wherein the reflection type polarization selecting element is a reflecting type circular polarizing plate and the polarization changing element is a half wave plate.

5. The device according to claim 1, wherein the reflection type spatial light modulating element is illuminated via a color selecting means that temporally splits the light from the light source into color components and the illumination light is modulated based on image information corresponding to color components selected by the color selecting means.

6. The device according to claim 1, wherein a plurality of the reflecting type spatial

light modulating elements is provided, and each of them is illuminated via the color selecting means that temporally splits the light from the light source into color components and modulates the illumination light based on image information corresponding to the color components selected by the color selecting means for each of them.

7. The device according to claim 1, further comprising a relay lens through which light reflected by the reflector toward the first fly-eye integrator is passed,

the first and second fly-eye integrators including fly-eye lenses equal in size to each other and disposed at a constant pitch, a central one of the plurality of fly-eye lenses being displaced a distance equal to a quarter of the fly-eye lens pitch in relation to the optical axis of the relay lens in at least one direction perpendicular to the optical axis.

8. The device according to claim 7, wherein:

in the first and second fly-eye integrators including the fly-eye lenses equal in size to each other and disposed at the constant pitch, the central one of the plurality of fly-eye lenses being displaced a distance equal to a quarter of the fly-eye lens pitch in relation to the optical axis of the projection optical system in at least one direction perpendicular to the optical axis; and

the optical axis of the projection optical system is aligned with that of the relay lens.

9. The device according to claim 7, wherein the first and second fly-eye integrators

are positioned at the contour with reference to the optical disk of the relay lens so that the central one of the plurality of fly-eye lenses is in a position displaced a distance equal to a quarter of the fly-eye lens pitch in relation to the optical axis of the relay lens in at least one direction perpendicular to the optical axis.

10. The device according to claim 9, wherein for each of the first and second fly-eye integrators, there is provided at the contour thereof a positioning portion which is a reference point for positioning.

11. The device according to claim 10, wherein further comprising:

a first lens-barrel that positions and holds the spheroidal reflecting mirror, reflection type polarization selecting element and reflector and positions the first fly-eye integrator in relation to the spheroidal reflecting mirror while positioning it by the positioning portion and holding it;

a second lens-barrel that positions and holds the spheroidal reflecting mirror, reflection type polarization selecting element and reflector and positions the second fly-eye integrator in relation to the reflection type spatial light modulating element while positioning it by the positioning portion and holding it; and

a holding member for positioning the first and second fly-eye integrators by their positioning portions, respectively, and holding them.

12. The device according to claim 10, further comprising:

a holding member for positioning the first and second fly-eye integrators by their positioning portions, respectively, and holding them; and

a lens-barrel for positioning one of the first and second fly-eye integrators by the positioning portion of the fly-eye integrator and holding it.